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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,479	01/27/2004	Kimitaka Kamijo	118005	9134

25944 7590 01/25/2007
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EXAMINER

DUONG, THOI V

ART UNIT PAPER NUMBER

2871

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/25/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/764,479

Applicant(s)

KAMIJO, KIMITAKA

Examiner

Thoi V. Duong

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,9-11,14,16 and 17 ~~is/are~~ are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,9-11,14,16 and 17 ~~is/are~~ are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) None
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This office action is in response to the Amendment filed October 31, 2006.

Accordingly, claims 1, 14 and 17 were amended, and claims 2-8, 12, 13 and 15 were cancelled. Currently, claims 1, 9-11, 14, 16 and 17 are pending in this application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 9, 11, 14, 16 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamanaka et al. (Yamanaka, US 6,452,653 B1).

Re claim 1, as shown in Figs. 16 and 24 (Fig. 24 is annotated), Yamanaka discloses a liquid crystal display device, comprising:

a lower substrate 11;

an upper substrate 20 opposing the lower substrate;

a liquid crystal layer 21 disposed between the lower substrate 11 and the upper substrate 20;

a pixel region including pixels each having a length and a width (Fig. 24B); and

a reflective layer 15 (pixel electrode) on an inner surface of the lower substrate (col. 29, lines 20-22), the reflective layer including an irregular surface including at least two types of irregularity groups having different shapes or sizes, each of the irregularity groups having substantially randomly arranged irregularities in plan view, the irregularity

Art Unit: 2871

groups being substantially randomly arranged in plan view, the different irregularity groups each having a length that is shorter than the length or width of the pixels and a width that is shorter than the length or width of the pixels and the at least portion of the different irregularity groups being disposed within a single pixel having the pixel electrode 15 in plan view as shown in Figs. 24B (col. 34, lines 14-28).

It is inherent that the pixel region comprises the pixels juxtaposed at a pixel pitch.

Re claim 9, as shown in Fig. 24B, the planar shapes of the irregularity groups are substantially rectangular.

Re claim 11, as shown in Fig. 24B, the planar shapes of the irregularity groups are substantially quadrangular and the shapes of two opposing edges of the irregularity groups are substantially the same.

Re claim 16, Yamanaka discloses an electronic device comprising the liquid crystal display device described above (col. 1, lines 7-13).

Re claim 14, as shown in Figs. 16 and 24 (Fig. 24 is annotated), Yamanaka discloses a reflector, comprising:

- a substrate 20;

- a reflective layer 15 (pixel electrode) formed on the substrate (col. 29, lines 20-22); and

- a pixel region including pixels each having a length and a width (Fig. 24B),

- the reflective layer including an irregular surface including at least two types of irregularity groups having different shapes or sizes, each of the irregularity groups having substantially randomly arranged irregularities in plan view, the irregularity groups

Art Unit: 2871

being substantially randomly arranged in plan view, the different irregularity groups each having a length that is shorter than the length or width of the pixels and a width that is shorter than the length or width of the pixels and the at least portion of the different irregularity groups being disposed within a single pixel having the pixel electrode 15 in plan view as shown in Figs. 24B (col. 34, lines 14-28).

It is inherent that the pixel region comprises the pixels juxtaposed at a pixel pitch.

Re claim 17, as shown in Figs. 16 and 24 (Fig. 24 is annotated), Yamanaka discloses a liquid crystal display device, comprising:

- a lower substrate 11;

- an upper substrate 20 opposing the lower substrate;

- a liquid crystal layer 21 disposed between the lower substrate 11 and the upper substrate 20;

- a pixel region including pixels each having a length and a width (Fig. 24B); and

- a reflective layer 15 (pixel electrode) on an inner surface of the lower substrate (col. 29, lines 20-22), the reflective layer including an irregular surface including a plurality of irregularities 12 as shown in Fig. 24B, the irregular surface including:

- a first pattern of substantially randomly arranged irregularities (the pattern on the upper right portion of the reflective layer 15 in Fig. 24B), the first pattern having a length that is shorter than the length or width of the pixels and a width that is shorter than the length or width of the pixels, and being disposed within a single pixel having the pixel electrode 15 in plan view; and

a second pattern of substantially randomly arranged irregularities (the pattern on the lower left portion of the reflective layer 15 in Fig. 24B), the second pattern having a length that is shorter than the length or width of the pixels and a width that is shorter than the length or width of the pixels, and being disposed with a single pixel having the pixel electrode 15 in plan view, both the length and width of the first pattern being different from the length and width of the second pattern.

It is inherent that the pixel region comprises the pixels juxtaposed at a pixel pitch.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamanaka et al. (US 6,452,653 B1 or US'653) in view of Yamanaka et al. (US 6,873,384 B2 or US'384).

US'653 discloses a liquid crystal display device that is basically the same as that recited in claim 10 except for at least one irregularity being formed at each of the boundaries between the adjacent irregularity groups.

As shown in Fig. 18, US'384 shows some irregularities formed at each of the boundaries between the adjacent irregularity groups 3' (col. 13, lines 27-35).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liquid crystal display device of US'653 with

Art Unit: 2871

the teaching of US'384 by forming one irregularity at each of the boundaries between the adjacent irregularity groups in order to obtain a reflector with interference suppressed (col. 13, lines 14-19 and 60-62).

Response to Arguments

6. Applicant's arguments filed October 31, 2006 have been fully considered but they are not persuasive.

With respect to Yamanaka (US 6,452,653 B1), Applicant argued that groups 12 in Figs. 24A and 24B are not associated with a pixel and Yamanaka does not disclose an irregular surface that includes different types of irregularity groups.

The Examiner disagrees with Applicant's remarks since Yamanaka discloses that the light reflecting film 15 functions as a pixel electrode in the region provided with the groups 12 of columnar portions (col. 29, lines 20-22). Accordingly, the groups 12 of columnar portions are associated with a pixel as shown in Fig. 24B where the plural groups 12 of columnar portions are positioned irregularly as suggested by Yamanaka (col. 34, lines 14-32). Yamanaka also suggests the plural groups 12 are arranged such that the pixel electrode 15 has a projecting and depressed surface configuration, which results in four different types of irregularity groups shown in Fig. 24B. Thus, Yamanaka does disclose an irregular surface that includes different types of irregularity groups.

Finally, Fig. 28 of Yamanaka was used in the previous office action to show the arrangement of the pixels fabricated by a platen 105, where each of the regions 102 corresponds to one pixel (col. 36, lines 32-49).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms, can be reached at (571) 272-1787.

Thoi V. Duong



01/14/2007

U.S. Patent

Sep. 17, 2002

Sheet 24 of 37

US 6,452,653 B1

Fig. 24A

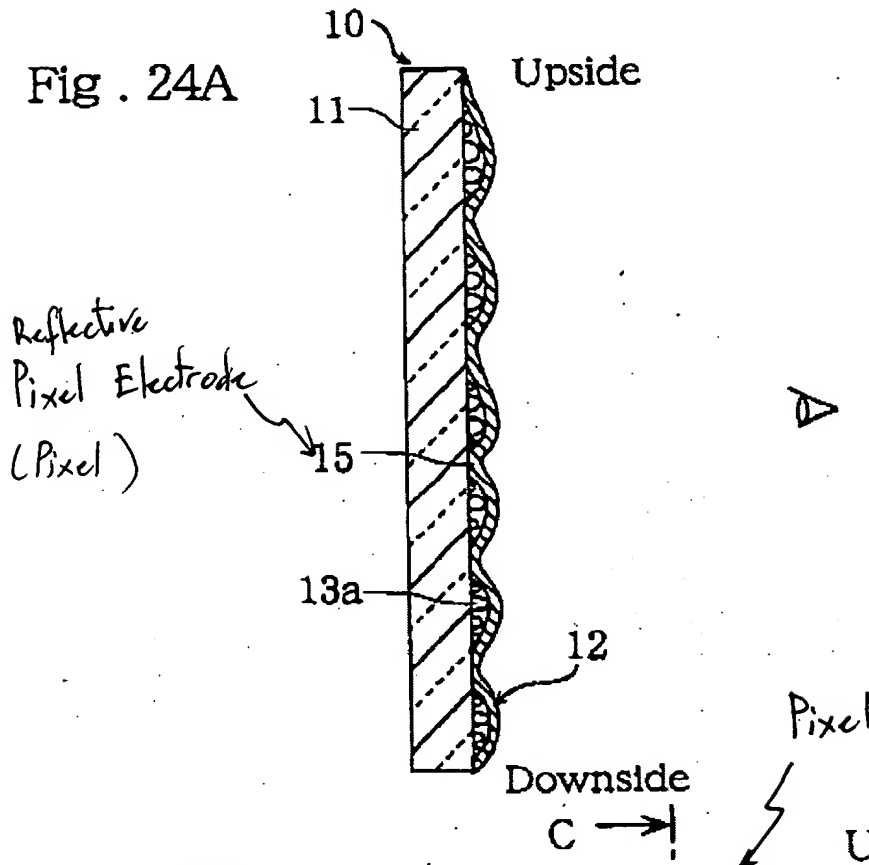


Fig. 24B

